What is claimed is:

1. An integrator unit for a microlithographic projection exposure system defining a beam path along which light passes in a light direction, the integrator unit comprising:

a rod integrator arranged in said beam path;

a diaphragm mounted in said beam path forward of said rod integrator with respect to said light direction; and,

said diaphragm including:

a diaphragm body;

said diaphragm body having a diaphragm opening formed therein;

said diaphragm opening being symmetrical to a first symmetry axis extending in x-direction;

said diaphragm opening having widths in said x-direction which are dependent upon a distance (y) from said first symmetry axis; and,

said widths being greater than or equal to the width of said diaphragm opening at $y = 0$.

2. The integrator unit of claim 1, wherein said diaphragm opening has an effective height (H_{BL}) which is about equal to said width at $y = 0$.

3. The integrator unit of claim 2, wherein said diaphragm opening has a first width (B_1) at $y = 0$ and a second width (B_2) at $y = H_{BL}/2$; said first width (B_1) and said second width (B_2) define a ratio having a value lying between 1.0 and 2.0; and, the widths of said diaphragm opening being greater than or equal to said first width (B_1) and less than or equal to said second

width (B_2).

4. The integrator unit of claim 2, wherein said diaphragm opening has a first width (B_1) at $y = 0$ and a second width (B_2) at $y = H_{BL}/2$; said first width (B_1) and said second width (B_2) define a ratio having a value lying between 1.4 and 1.7; and, the widths of said diaphragm opening being greater than or equal to said first width (B_1) and less than or equal to said second width (B_2).

5. The integrator unit of claim 4, wherein said diaphragm opening has a constant width from $y = 0$ to a pregiven distance y_0, which is greater than $H_{BL}/4$ and less than $H_{BL}/2$.

6. The integrator unit of claim 5, wherein the ratio of the difference between the effective height (H_{BL}) and twice the value of said distance (y_0) to the difference of said second width (B_2) and said first width (B_1) is 0.6.

7. The integrator unit of claim 5, wherein the width of said diaphragm opening increases linearly between said distance y_0 and $y = H_{BL}/2$.

8. The integrator unit of claim 1, wherein said diaphragm opening is symmetrical to a second symmetry axis perpendicular to said first symmetry axis.

9. The integrator unit of claim 1, wherein the width of said diaphragm opening at $y = 0$ has values lying between 2 mm and 30 mm.

10. The integrator unit of claim 1, wherein the width of said diaphragm opening at y = 0 has values lying between 4 mm and 20 mm.

11. The integrator unit of claim 1, wherein said distance (y) extends in a y-direction perpendicular to said x-direction; and, said rod integrator has a rectangular entry surface having a rod width in said x-direction and a rod height in said y-direction; and, the ratio of said rod width to said rod height is at least 1.5 and the width of said diaphragm opening at y = 0 is about equal to said rod height.

12. An illuminating system for a microlithographic projection exposure system defining a beam path along which light passes in a light direction, the illuminating system comprising:

a light source for generating said light for travel along said beam path; and,

an integrator unit including:

a rod integrator arranged in said beam path;

a diaphragm mounted in said beam path forward of said rod integrator with respect to said light direction; and,

said diaphragm including:

a diaphragm body;

said diaphragm body having a diaphragm opening formed therein;

said diaphragm opening being symmetrical to a first symmetry axis extending in x-direction;

said diaphragm opening having widths in said x-direction which are dependent upon a distance (y) from said first symmetry axis; and,

said widths being greater than or equal to the width of said diaphragm opening at y = 0.

13. The illuminating system of claim 12, further comprising:

a condenser optic mounted forward of said integrator unit with respect to said light direction and being configured to illuminate said diaphragm with a light spot having a diameter greater than the height of said rod integrator;

a pupil plane downstream of said integrator unit viewed in said light direction;

a pupil illumination having an ellipticity; and,

said diaphragm vignetting said light spot so as to cause said ellipticity to be less than 10%.

14. The illuminating system of claim 13, wherein said ellipticity is less than 5%.

15. The illuminating system of claim 13, wherein said diaphragm has an in-coupling efficiency which is greater than for a diaphragm having a circular diaphragm opening whose diameter is equal to said rod height.

16. A microlithographic projection exposure system defining a beam path along which light passes in a light direction, said system comprising:

an illuminating system including: a light source for generating said light for travel along said beam path; and, an integrator unit including: a rod integrator arranged in said beam path; a diaphragm mounted in said beam path forward of said rod integrator with respect to said light direction; and, said

diaphragm including: a diaphragm body; said diaphragm body having a diaphragm opening formed therein; said diaphragm opening being symmetrical to a first symmetry axis extending in x-direction; said diaphragm opening having widths in said x-direction which are dependent upon a distance (y) from said first symmetry axis; and, said widths being greater than or equal to the width of said diaphragm opening at $y = 0$; and,

a projection objective for imaging a mask carrying a structure onto a light-sensitive substrate.

17. A method for exposing a light-substrate including for producing semiconductor components, the method comprising the steps of:

generating a light beam utilizing a light source;

collecting said light beam with a condenser optic and illuminating a first pupil plane in said condenser optic with a first pupil illumination having no ellipticity;

focussing said light beam to a light spot on an entry surface of said rod integrator utilizing said condenser optic with said light spot being approximately round and having a diameter;

wherein said entry surface has a first expansion in a first direction and a second expansion in a second direction perpendicular to said first direction and said second expansion being greater than said first expansion by a factor of 1.5 and said diameter of said light spot is greater than said first expansion;

vignetting said light spot with a diaphragm which is mounted forward of said rod integrator;

homogenizing said light beam with said rod integrator and

generating a homogeneous field illumination at a masking system mounted downstream of said rod integrator;

imaging said masking system onto a first field plane with an objective and generating a second pupil illumination in a second pupil plane of said objective with said second pupil illumination having an ellipticity of less than 10%;

mounting a mask carrying structure in the first field plane;

imaging said mask carrying structure onto a second field plane utilizing a projection objective; and,

arranging a light-sensitive substrate in said second field plane and exposing the light-sensitive substrate.

18. The method of claim 17, wherein said ellipticity is less than 5%.

19. The method of claim 17, wherein said light spot is vignetted utilizing a diaphragm including:

a diaphragm body;

said diaphragm body having a diaphragm opening formed therein;

said diaphragm opening being symmetrical to a first symmetry axis extending in x-direction;

said diaphragm opening having widths in said x-direction which are dependent upon a distance (y) from said first symmetry axis; and,

said widths being greater than or equal to the width of said diaphragm opening at $y = 0$.